

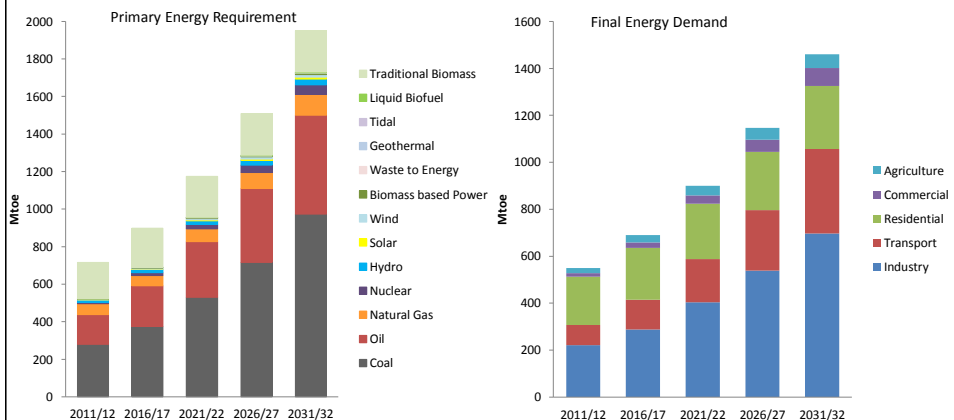


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An Unambitious, Unsustainable Future



- Primary energy supply increases from 717 (2011/12) mtoe to 1950 mtoe (2031/32); coal followed by oil remain the two dominant energy sources
- Final energy demand rises from 549 mtoe (2011/12) to 1460 mtoe (2031/32), an increase of about 2.7 times in 20 years
- Industry sector continues to remain the major energy consumer (40%- 48%), and the share of transport sector rises from 16% (2011/12) to 25% (2031/32)

Source: TERI's MARKAL Model Results

Why Unsustainable?

Parameter	Current Status (2011/12)
Import dependence - Oil	76%
Import dependence - Coal	23%
Import dependence - Natural Gas	21%
Total energy import dependence for fossil fuels (energy terms)	40%

- Oil imports alone would be around 10 million barrels per day by 2031/32 (from around 2.5 million barrels per day in 2011/12)
- Annual coal imports rise from around 100 MT in 2011/12 to 1012 MT in 2031/32
- Import bill rises to Rs. 33.5 trillion in 2031/32 (net import bill at 2011 prices)
- A rise by about 5.9 times of the current amount!

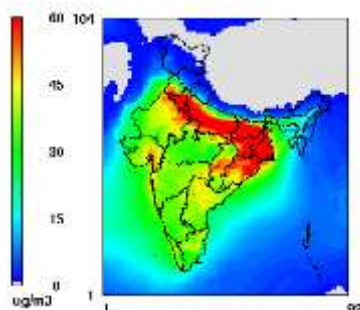
Source: TERI's MARKAL Model Results

3

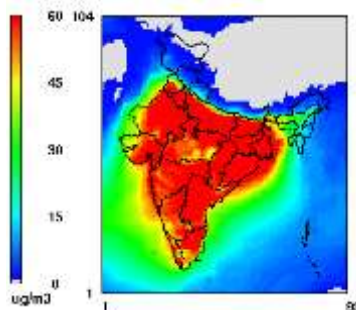
Deteriorating Air Quality

Regional scale air quality in India -2011 and projections for Reference Scenario 2031

PM2.5 (2011: Winter)



PM2.5 (2031: Winter)

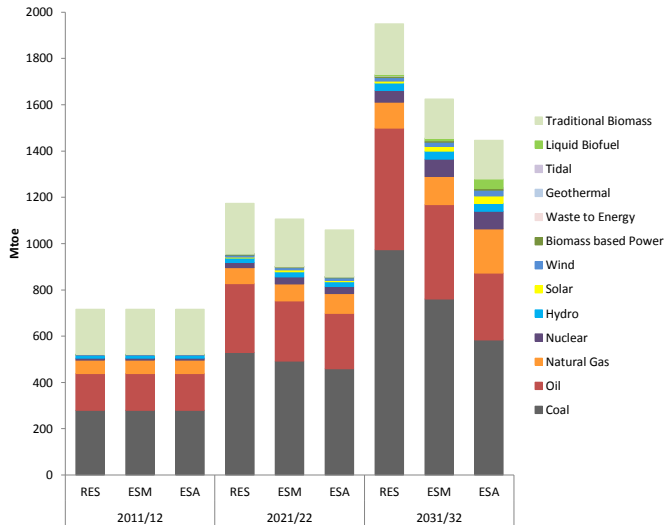


Source: TERI's Integrated MARKAL, WRF, CMAQ Models Results

- By 2011/12, most cities in the country had already exceeded the ambient air quality standard
 - In 2011/12 mortality from PM 2.5 was 5.73 lakhs
 - In future, the air quality worsens increasing the mortality to 10.45 lakhs (2031/32)

4

Primary Energy Growth



- The ESM reflects a saving of 17% while the ESA reflects a saving of 26% in 2031/32 when compared to the RES levels
- The share of new renewable energy increases to 3% in ESM and 7% in ESA compared to 2% in RES in 2031/32
- The share of fossil fuels in the RES stands at 83%, while in the ESM it drops to 79% and in the ESA to 74% by 2031/32

5

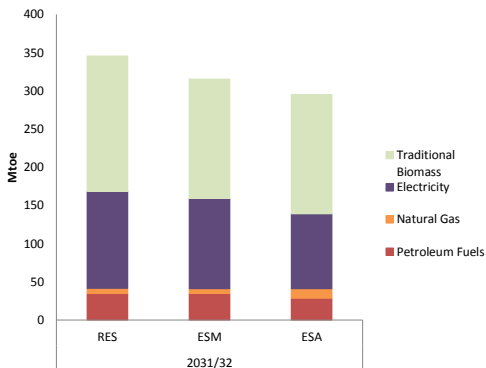
Residential and Commercial: Present Situation

- Household electricity consumption due to appliances is expected to increase significantly in the future due to growth in per capita income.
- Electricity consumption by buildings has been growing over the years, from 15% (1970/71) it has grown to 34% of the total consumption in 2010/11.
- There is going to be huge demand for real estate space in India in the coming years and the electricity consumption by buildings is likely to grow even more with this construction boom in India
- Upcoming commercial buildings are highly energy intensive. If they are built and operated in the conventional manner, their energy demand will increase enormously
- There is a significant potential for electricity savings by buildings sector in India

*Efficient lighting alone has **50%** electricity saving potential*

6

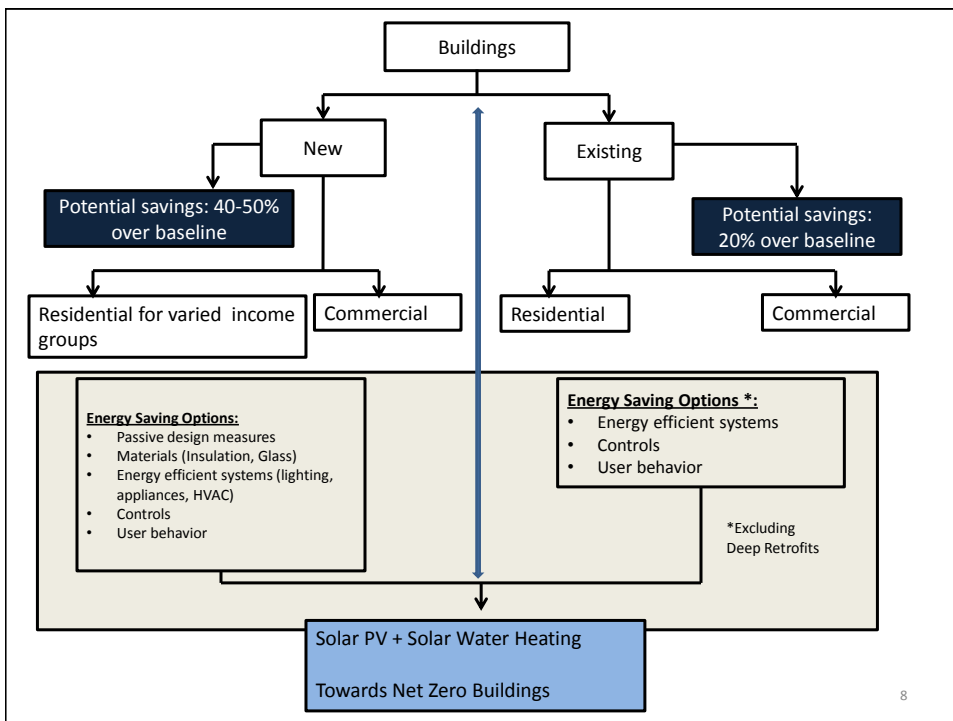
Residential and Commercial Sector: Projections



Source: TERI's MARKAL Model Results

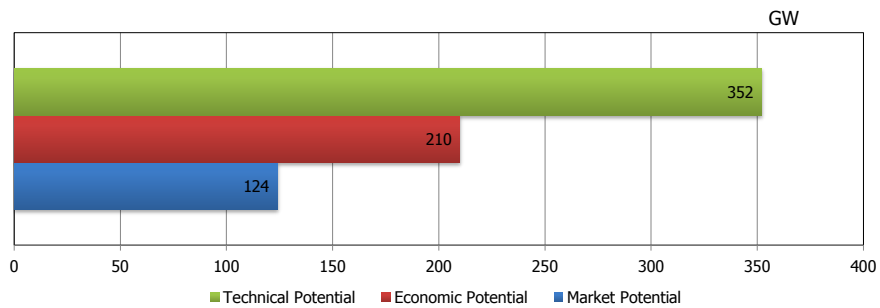
- Energy demand of the commercial sector grows at an annual rate of around 8%
- The energy demand (including biomass) of the residential and commercial sector grows from 221 mtoe (2011/12) to 346 mtoe (2031/32)
- The ESM reflects a saving of 9%, while the ESA reflects a saving of 15% by 2031/32, with intense electrification of the energy use
- Traditional biomass continues dominate the energy mix of the residential sector even in 2031/32

7



8

All-India Rooftop SPV Potential



Market potential for rooftop SPV is 124 GW based on current build up area

Solar rooftop could be a game changer for the role of solar PV in the power sector